WAREG
European Water Regulators

3rd EFRWS

EUROPEAN FORUM ON THE REGULATION OF WATER SERVICES

Better regulation for climate neutrality

6th DECEMBER 2023

ROYAL MUSEUMS OF FINE ARTS OF BELGIUM
Place du Musée/Museumplein, 1000 Brussels

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SESSION 1

THE NEW EU URBAN WASTEWATER TREATMENT DIRECTIVE: POTENTIAL IMPLICATIONS FOR WATER CUSTOMERS AND INDUSTRY IN THE EU

SESSION 2

THE EU VISION FOR CLIMATE NEUTRALITY AND THE WATER-TO-ENERGY NEXUS

SESSION 3

CLIMATE RESILIENCE AND ADAPTION OF WATER SERVICES IN THE EU AND EU NEIGHBOURING COUNTRIES

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SESSION 3

CLIMATE RESILIENCE AND ADAPTION OF WATER SERVICES
IN THE EU AND EU NEIGHBOURING COUNTRIES

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How do economic regulators measure the quality and efficiency of water and sanitation services? Performance monitoring of water resilience

Water scarcity in Europe

Wenn du mich siehst, dann weine
If you see me, then weep
Hunger Stone
River Elbe in the Czech Republic

- Water scarcity affected **29%** of the EU territory during at least one season in 2019.
- Despite water abstraction **declining by 15%** in the EU between 2000 and 2019, there has been no overall reduction in the area affected by water scarcity conditions.
- **In fact, since 2010 there has been a worsening of the situation.**
- With some exceptions including Scandinavia, most of the continent is **losing** far more groundwater each year than is being **replaced** by rainfall and other recharge.
- Too little in some places and too much in others, "**water is the messenger delivering the bad news of climate change**" to people around the world

Source: National Geographic, Barnet, C., 06 Dec 2022, Europe's water crisis is much worse than we thought

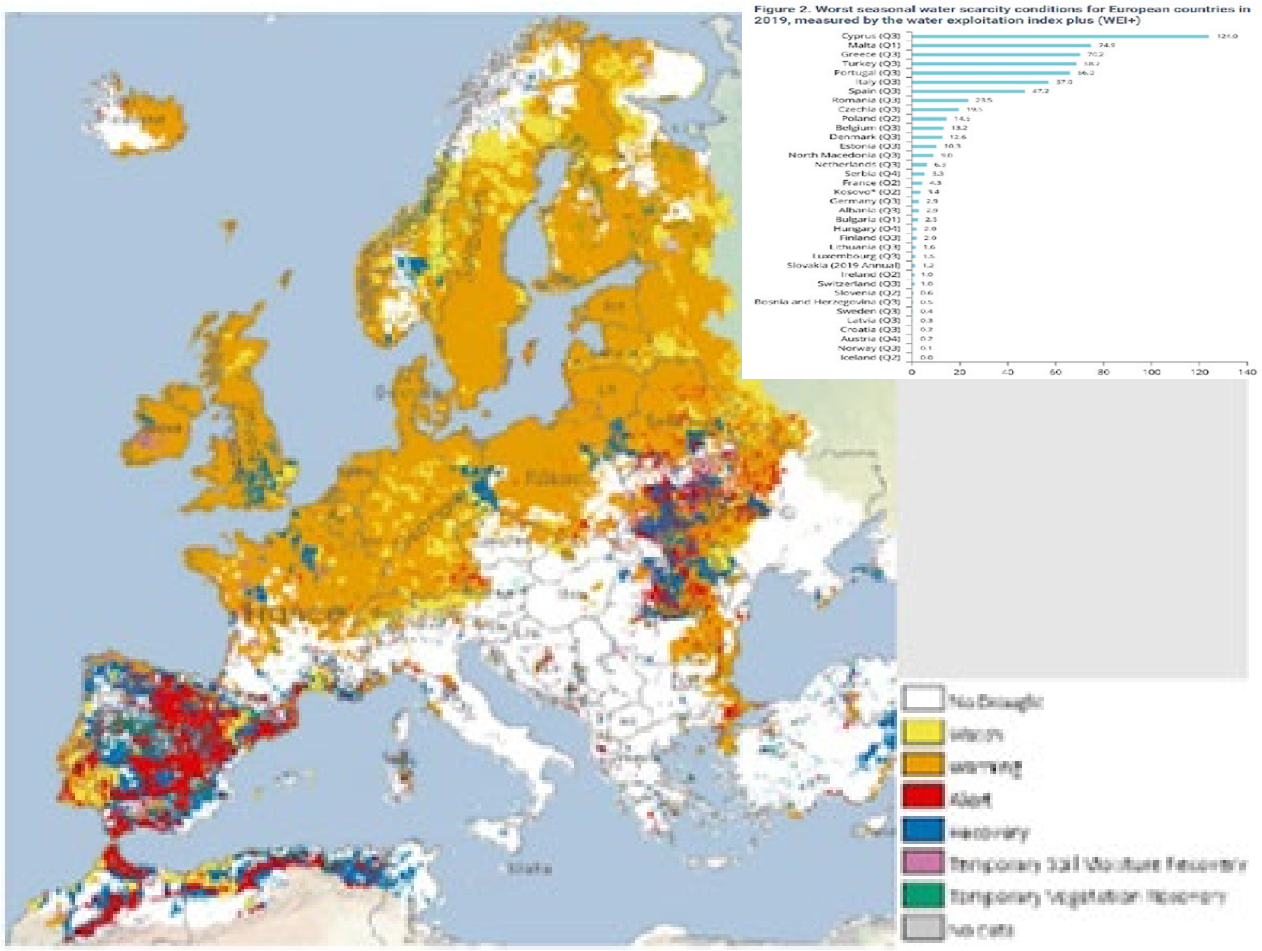


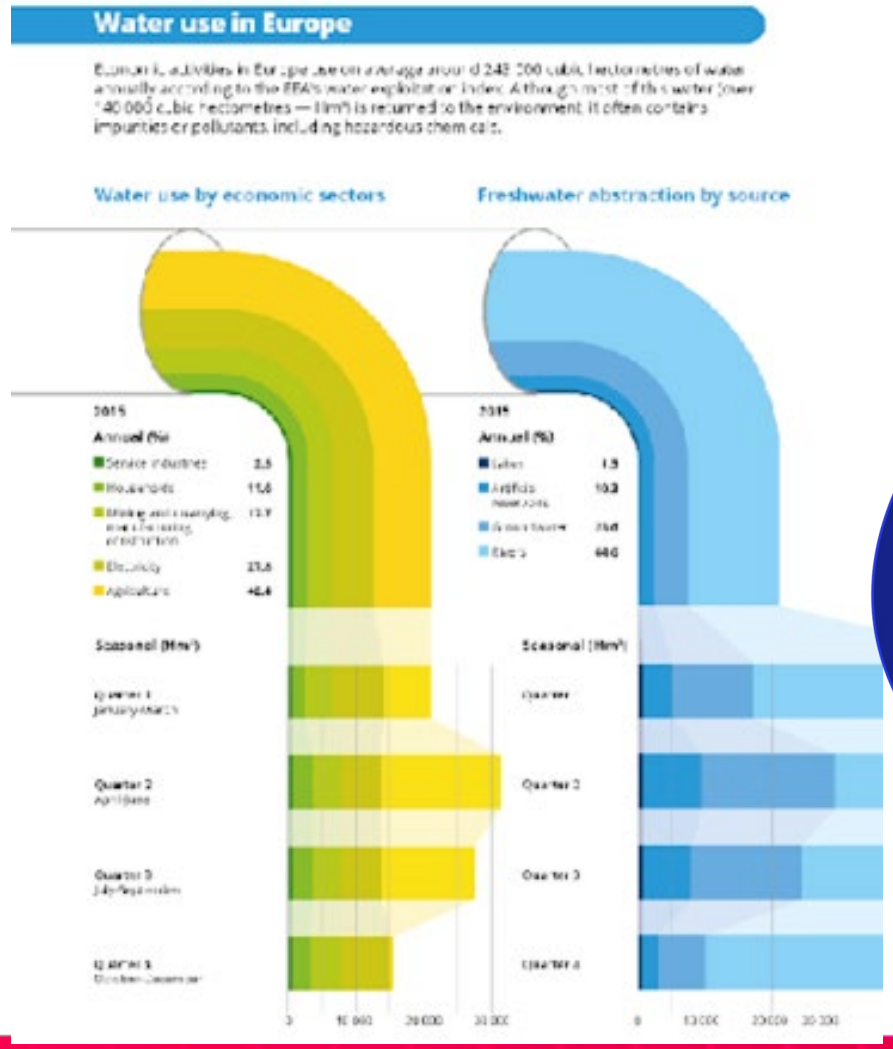
Figure 1: The Combined Drought Indicator (CDI) based on a combination of indicators of precipitation, soil moisture, and vegetation conditions for mid-June 2023

Water scarcity in Europe

- **Combined Drought Indicator** at mid-June 2023 in Europe shows **comparable** conditions to those for the same period in 2022, when a severe-to-extreme drought developed over Europe, affecting water resources, agriculture and energy production.
- Both 2023 and 2022 are **worse** than 2021 in terms of drought conditions, except for northern Scandinavia.

Source: European Environment Agency, 13 Jan 2023, Water scarcity conditions in Europe (Water exploitation index plus)
Source: EC, Joint Research Centre, June 2023, Drought in Europe

Water consumption in Europe



Freshwater source: **88,2%** rivers and groundwater; **10,3% -** reservoirs, **1,5%** lakes

Consumers: 40% - agriculture 28% - energy production 18% - mining and manufacturing 12% - household use

19% overall decrease in total water abstraction since 1990 **33%** of EU territory – exposed to water stress conditions

WS service provision across Europe

- Water and sanitation(WS) assets are of public ownership across Europe, often owned by Local governments.
- Service provision is mostly organized as *delegated public management* models, where municipal or state owned companies are organized to manage the assets and provide service. Unfortunately there are still cases of *direct public management* (service is provided directly by municipality).
- Private involvement is also available through *delegated private management* models (concession / lease contracts), and rarely through *direct private management* (usually small suppliers to limited number of customers).
- Regulation and control are achieved in different model…

National Multi-sector Regulator: Energy & Water
(*Armenia, Malta, Bulgaria, Lithuania, Georgia, Latvia, Estonia, Italy, Hungary, Ireland, Moldova, North Macedonia, Montenegro, Brussels)*

National Water-only Regulator
(*England and Wales, Scotland, Albania, Kosovo)*

Other Regulators / Agencies
(*Denmark, Flanders, Portugal, Romania, Poland)*

Local regulation % ex-post control
(*France, Germany, Austria, Spain, Netherlands, Scandinavia, Wallonia…)*

WS service regulation across Europe

WS Regulators:

- Board members are appointed by Parliament / Government / President;
- Mandate between 5-7 years, usually limited to 2 mandates;
- Independence is guaranteed by financing from own sources.

Tasks:

- Collection of technical and economic data from WS operators (usually annual reporting)
- Review and approve tariff proposals of WS operators (different regimes for final approval);
- Monitoring of service quality and WS operators efficiency through KPIs;
- Business plans of WS operators review and approval (different regimes)
- Licensing of WS operators;
- Review of customer complaints;

Final tariff approval
(Albania, Armenia, Brussels, Flanders, Bulgaria, Estonia, Georgia, Ireland, Italy, Kosovo, Malta, North Macedonia)

Coordination of tariff approval
(Moldova, Montenegro, Lithuania, Hungary, Portugal, Romania)

Threshold of size / urban regulation
(Denmark, Estonia, Latvia, Moldova)

Business plan approval
(Albania, Bulgaria, Georgia, Ireland, Italy, Kosovo, Malta, Moldova, Romania)

Licensing
(Albania, Armenia, Georgia, Hungary, Kosovo, Lithuania, Malta, Montenegro, Romania)

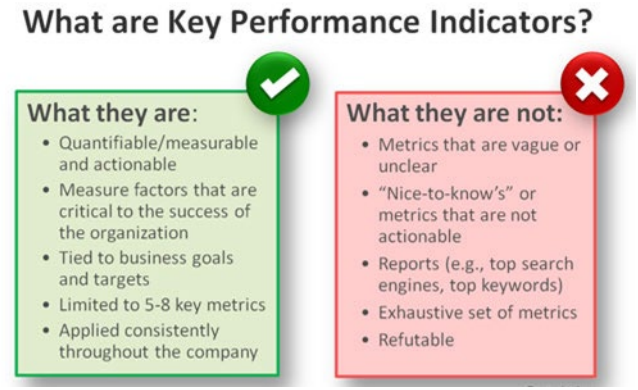
KPIs monitoring
(Albania, Flanders, Bulgaria, Georgia, Hungary, Ireland, Italy, Kosovo, Latvia, Lithuania, Malta, Montenegro, North Macedonia, Portugal, Romania)

KPIs used in tariffs
(Albania, Bulgaria, Estonia, Georgia, Hungary, Italy, Lithuania, Portugal)

Key Performance Indicators (KPIs)

- Essentially systematic and consistent ways of measuring an organization's performance / efficiency against their strategic objectives and targets AND others in the same industry AND set targets by legislation / regulator;
- Provide detailed information and quantitative analysis which permit organizations to make sound business decisions and monitor their progress AND permit comparison of an organization's performance against its peers;
- **Used by regulatory bodies** to analyse and review organization's performance AND benchmark AND measure progress (☺) or regress (☹) against set targets AND potentially link it to tariff setting mechanisms.

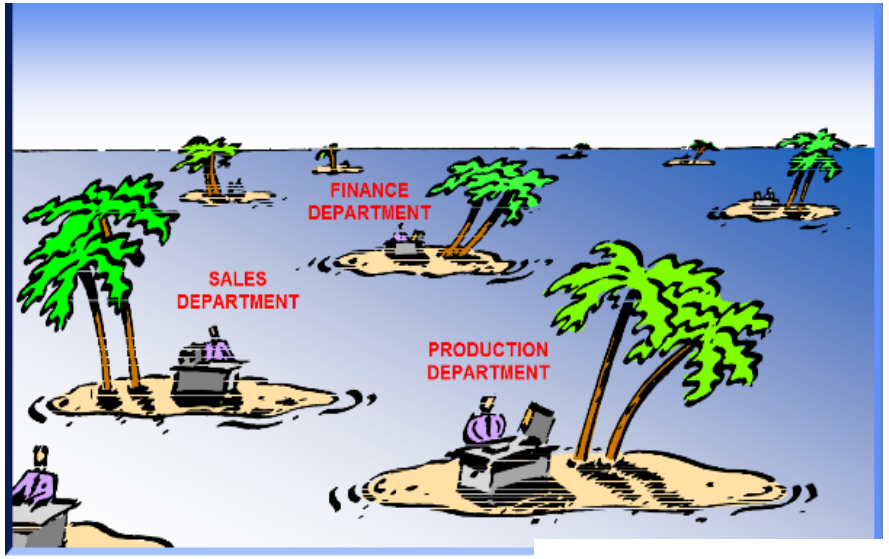
Various performance indicators and benchmarking platforms exist in the water industry, with lack of consistency in the definitions, descriptions, application and methodologies and approaches.
These are designed with different objectives and are not free of access.



KPIs	Metrics
All KPIs are Metrics	All Metrics are not KPIs
KPIs give a holistic view of the performance of different functions in your organization	Metrics give you a picture of how different individual activities rolled out within the functions are progressing
KPIs tell you where exactly your teams stand with respect to the overall business goals	Individual Metrics do not give any insights on their own
Examples: Pre-sales KPIs, Email Marketing KPIs, Customer Success KPIs	Examples: Open Rate, Conversations in the last 2 weeks, Deals lost last quarter

CHALLENGES IN BENCHMARKING – NATIONAL LEVEL

- Most of the data reported by WSO is generated inside the company, and is difficult to verify with external sources;
- In many cases there is no data integration inside the WSO ("islands of information")
- Reporting can be manipulated or mistaken either on purpose or unintentionally;
- Regulators have different powers / capacity / budget / independence to check, inspect, validate and verify reported data from WS operators;
- Usually, there is no support from external authorities (asset owner, operator`s owner, others).
- More and more regulators issue specific requirements for WSOs internal information systems, in order to improve reliability of reported information



CHALLENGES IN BENCHMARKING – INTERNATIONAL LEVEL

Significant differences between WAREG members :

- Scope of competences;
- Data collection process;
- Data validation and verification;
- Setting KPIs targets to operators;
- Assessing data quality and reliability;
- Monitoring performance;
- Reflection of KPIs levels into tariff setting;
- Powers to approve business plans;
- Powers to issue/revoke license to the operator;
- Methodologies, definitions and units of KPIs in usage;

Less than half of the regulators can set targets of monitored KPIs and/or can link these targets with licensing regime or business plan approval – **lack of integrated regulatory approach.**

Often regulators have **minimal powers** against companies` performance, with rarely used options to impose sanctions or reflect KPIs monitoring into the tariff setting process.

One of the most used option by the regulators is "**name and shame**" procedure, where achieved results are publicly announced.

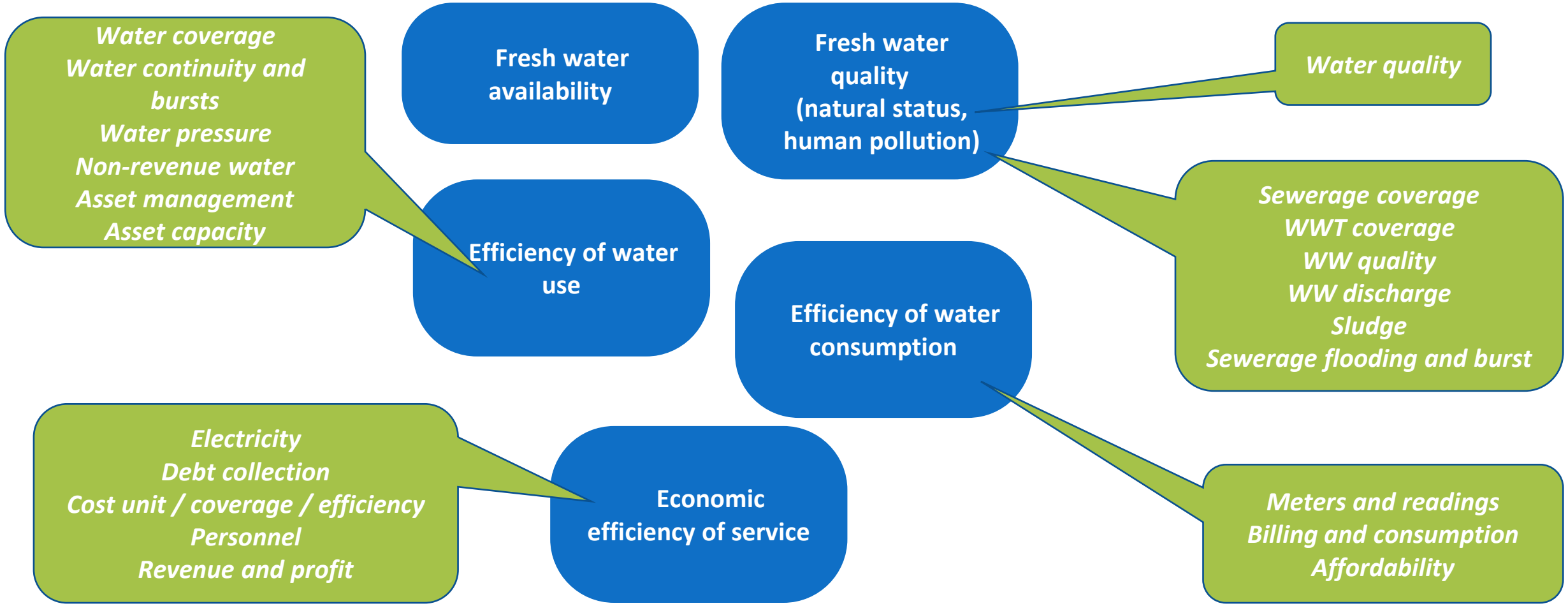
Various indicators are used and applied by the WAREG members - analysed 425 indicators demonstrate **differences** not only in types and categories of the indicators used, but also **contrasts and distinctions**

WS INDICATORS among WAREG Members

MEMBER	NUMBER OF KPIs
Albania	15
Azores	30
Brussels	33
Bulgaria	30
Estonia	5
Flanders	24
Georgia	11
Greece	10
Hungary	26
Ireland	51
Italy	13
Kosovo	15
Latvia	27
Lithuania	30
Malta	11
Montenegro	17
North Macedonia	10
Portugal	44
Romania	23
TOTAL	425

KPIs CATEGORY	KPIs SUB-CATEGORY	NUMBER OF KPIs	SHARE
Service coverage	Water coverage	19	4,5%
	Sewer coverage	17	4.0%
	WW treatment coverage	6	1,4%
	New connections	7	1,6%
Service quality	Water quality	23	5,4%
	Water continuity and bursts	29	6,8%
	Water pressure	2	0,5%
	Sewerage flooding and bursts	20	4,7%
	Complaints and communication	25	5,9%
Environment	WW quality	21	4.9%
	WW discharge	4	0.9%
	Sludge	8	1,9%
Asset efficiency	Asset Management	33	7,8%
	Asset capacity	24	5,6%
	Electricity	31	7,3%
	Non-Revenue Water	30	7,1%
Economic efficiency	Meters and reading	12	2,8%
	Billing and consumption	9	2,1%
	Debt collection	11	2,6%
	Affordability	4	0.9%
	Cost unit/coverage/efficiency	45	10,6%
	Personnel	39	9,2%
	Revenue and profit	6	1,4%
TOTAL		425	100,0%

How can water resilience BE MONITORED



Environmental KPIs

WASTEWATER QUALITY KPIs (10 members)

- Mostly by monitoring number of tests or analysis in compliance (7 KPIs)
- Population served by WWT in compliance (2 KPIs)
- Level of coverage with secondary/tertiary WWT (2 KPIs)
- Other (9 KPIs)

Other environment KPIs

- **Discharge without treatment** – emergency cases / storm overflows (3 members)
- Sludge from WWT – production, utilization, disposal (6 members)

ASSET EFFICIENCY KPIS

ASSET MANAGEMENT KPIs (10 members)

- Level of pipe rehabilitation / replacement / renewal (17 KPIs);
- New asset (4 KPIs);
- Asset inspection / monitoring (3 KPIs);
- Infrastructure asset management (2 KPIs);

ASSET CAPACITY KPIs (10 members)

- Water/wastewater capacity (tanks / treatment plants (7 KPIs)
- Treatment plants / reservoirs – new / upgraded / overloaded (5 KPIs);
- Collected / treated / infiltration / reuse (10 KPIs)

Service quality

Water service continuity (13 KPIs):

Per zone / properties / individual interruptions / days restricted / customers affected / etc…

Bursts on water network (12 KPIs):

+/- hidden leaks; +/- length of service connections; different units…

Energy efficiency

Energy efficiency of water supply (8 KPIs) / collected wastewater (3 KPIs) / treated wastewater (6 KPIs) – kWh/m3

Level of **electricity produced** from own sources (biogas, solar power) used for water and wastewater services in kWh/kWh (4 KPIs)

Other: energy consumption and greenhouse gas emissions (2 KPIs); energy costs (2 KPIs); bought energy (2 KPIs).

Water losses

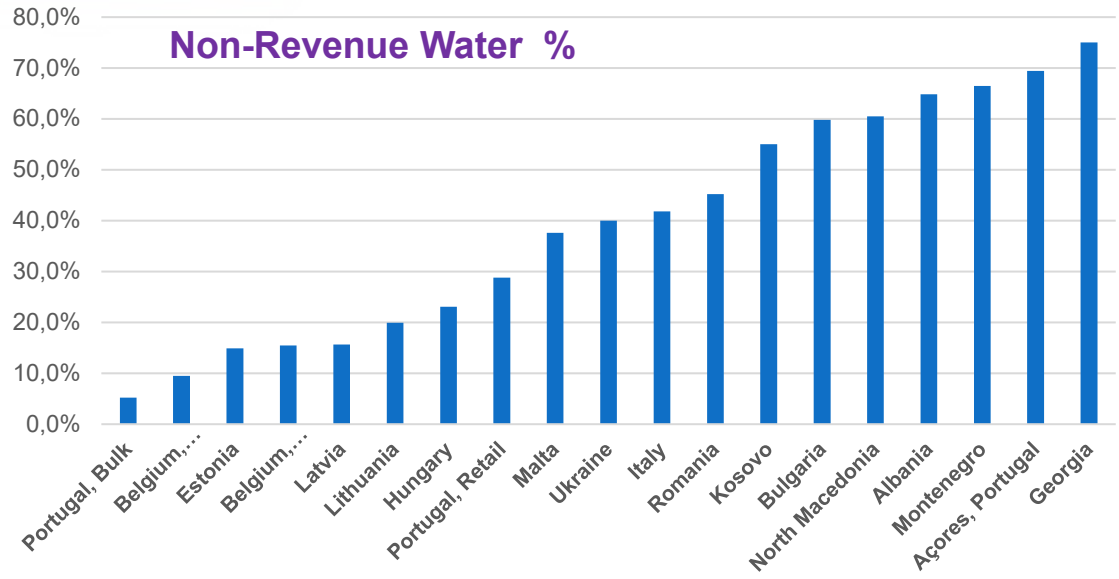
Non-Revenue Water: in % (11 KPIs); m3/km/d (6 KPIs); l/conn/d (2 KPIs)

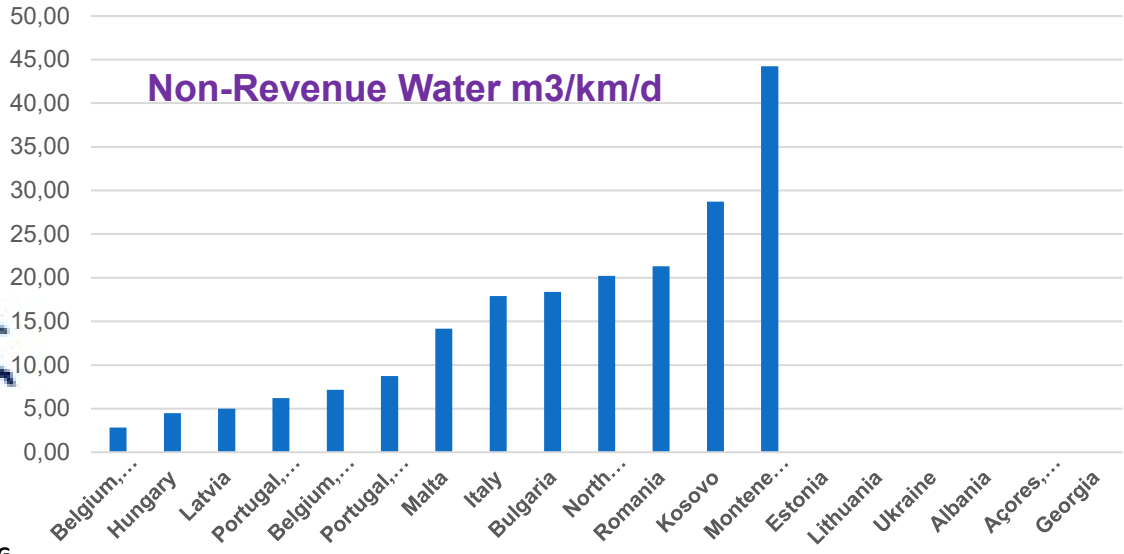
Real losses: m3/km/d (2 KPIs); l/conn/d (3 KPIs)

Infrastructure Leakage Index (3 KPIs)

System Input Volume	Authorised Consumption	Billed Authorised Consumption	Billed Metered Consumption (including water exported)	Revenue Water
			Billed Unmetered Consumption	
		Unbilled Authorised Consumption	Unbilled Metered Consumption	Non-Revenue Water (NRW)
			Unbilled Unmetered Consumption	
	Water Losses	Apparent* Losses	Unauthorised Consumption	
			Metering Inaccuracies	
		Real* Losses	Leakage on Transmission and/or Distribution Mains	
			Leakage and Overflows at Utility's Storage Tanks	
			Leakage on Service Connections up to the measurement point	

Non-Revenue Water in WAREG area





Source: WAREG

Different practices are applied during NRW calculation (not all companies included, or IWA water balance excluded)

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